UNITED STATES DISTRICT COURT

DISTRICT OF MAINE

MARGARET SMITH, et al.,	***)***	
	)	
Plaintiffs	***)***	
	)	
v.	***)***	***Civil No. 94-34-P-C***
	)	
INTERNATIONAL BUSINESS MACHINES CORPORATION,	***)***	
	)	
Defendant	***)***	

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KATHRYN J. GRADY,	***)***	
	)	
Plaintiff	***)***	
	)	
v.	***)***	***Civil No. 94-85-P-C***
	)	
INTERNATIONAL BUSINESS MACHINES CORPORATION,	***)***	
	)	
Defendant	***)***	

DECISION ON DEFENDANT'S MOTIONS IN LIMINE AND RECOMMENDED DECISION ON DEFENDANT'S MOTIONS FOR SUMMARY JUDGMENT

In these products liability cases the plaintiffs seek damages for injuries allegedly caused by the use of keyboards designed and manufactured by the defendant. Specifically, the plaintiffs assert claims for design defect and failure to warn under Maine's strict liability law, 14 M.R.S.A. § 221, and Maine's common law of negligence. The plaintiffs further claim that the defendant failed to properly test and study its equipment, and to impose or comply with reasonable standards and

regulations to minimize the danger to users of its keyboards. Finally, the plaintiffs assert punitive damages claims. In each case, the defendant has moved for summary judgment on the design defect, duty-to-warn and punitive damages claims, and has moved *in limine* to impose a temporal limitation on evidence of the defendant's duties to design a safe product and warn of the product's dangers. For the reasons discussed below, I grant the motions *in limine* in part and deny them in part, and recommend that the defendant's summary judgment motions be granted in part and denied in part.

I. Summary Judgment Standards

Summary judgment is appropriate only if "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). "In this regard, 'material' means that a contested fact has the potential to change the outcome of the suit under the governing law if the dispute over it is resolved favorably to the nonmovant. By like token, 'genuine' means that 'the evidence about the fact is such that a reasonable jury could resolve the point in favor of the nonmoving party . . . .'" *McCarthy v. Northwest Airlines, Inc.*, 56 F.3d 313, 315 (1st Cir. 1995) (citations omitted). The party moving for summary judgment must demonstrate an absence of evidence to support the nonmoving party's case. *Celotex Corp. v. Catrett*, 477 U.S. 317, 325 (1986). In determining whether this burden is met, the court must view the record in the light most favorable to the nonmoving party and "give that party the benefit of all reasonable inferences to be drawn in its favor." *Ortega-Rosario v. Alvarado-Ortiz*, 917 F.2d 71, 73 (1st Cir. 1990). Once the moving party has made a preliminary showing that no genuine issue of material fact exists, "the nonmovant must contradict the showing by pointing to

specific facts demonstrating that there is, indeed, a trialworthy issue." *National Amusements, Inc. v. Town of Dedham*, 43 F.3d 731, 735 (1st Cir.) (citing *Celotex*, 477 U.S. at 324), *cert. denied*, 132 L. Ed. 2d 255 (1995); Fed. R. Civ. P. 56(e); Local R. 19(b)(2).

II. State of the Summary Judgment Record

A. Defendant's Motion to Strike

As a threshold matter, I must determine what evidence may properly be considered on the motions for summary judgment. On July 5, 1995 the plaintiffs filed their statements of material facts ("SMF") (*Smith* Docket No. 40; *Grady* Docket No. 33), citing Exhibits A through Z attached to an affidavit of Moshe Maimon, Esq., one of their attorneys. ("Maimon Aff.") (*Smith* Docket No. 42; *Grady* Docket No. 34). The affidavit states that the exhibits are "true and correct copies of documents (or pertinent parts thereof) produced in discovery in other similar litigations, expert reports and deposition transcripts (or pertinent parts thereof) relevant to the instant motion." Maimon Aff. ¶ 2 (footnote omitted). In its opposition to the plaintiffs' SMF ("Defendant's SMF Opposition") (*Smith* Docket No. 44; *Grady* Docket No. 36), the defendant argues that this use of the affidavit "is improper and does not establish any evidentiary basis for admitting the documents or evidence." *Id.* at 1. This prompted the plaintiffs' response, attempting to cure the specified defects ("Plaintiffs' SMF Response") (*Smith* Docket No. 46; *Grady* Docket No. 38), which was followed by the defendant's motion to strike the response (*Smith* Docket No. 48; *Grady* Docket No. 40).

First, I deny the defendant's motion to strike. The defendant argues that the rules do not permit Plaintiffs' SMF Response, and that, should the court permit such a pleading in the exercise

of its inherent discretion, the court should nevertheless strike it as untimely. Although the rules do not explicitly permit such a pleading, I will allow it in this instance. Furthermore, I decline to strike it as untimely. Though the motion in each case was filed on September 1, 1995, forty-six days after the defendant's opposition to the plaintiffs' SMF, I find that the delay has not prejudiced the defendant. In its opposition, the defendant, wisely, not only argues that the affidavit does not serve to authenticate the exhibits, but also fully addresses the issues that will arise if the exhibits are authenticated. Furthermore, the plaintiffs' belated response did not add new evidence to their statement of material facts; it merely addressed authentication defects in the exhibits already submitted.

B. Evidence to Be Considered in the Summary Judgment Record

Next, I must consider whether the plaintiffs' response to the defendant's opposition to their SMF cured the authentication defects identified in the opposition.[1] *See* 10A C. Wright, A. Miller & M. Kane, *Federal Practice & Procedure* § 2722 at 58-60 (2d ed. 1983) ("To be admissible [on summary judgment], documents must be authenticated by and attached to an affidavit that meets the requirements of Rule 56(e) and the affiant must be a person through whom the exhibits could be admitted into evidence.") (footnotes omitted). Attorney Maimon's affidavit states that the attached exhibits were produced "out of the files of IBM . . . and out of the files of trade associations . . . of which IBM was a member." Maimon Aff. ¶ 2. The affidavit, however, does not specify which exhibits were produced by IBM and which by trade associations. Mere production by trade

[1] I read the defendant's objection that there is no "evidentiary basis" for the admission of the exhibits to mean that the documents are not properly authenticated.

associations would not authenticate the documents because trade associations are in no position to vouch for their authenticity. *See* discussion of authenticity, *infra*.

The plaintiffs' attempted cure is less than perfect. Rather than provide in affidavit form information regarding the source of each document, the plaintiffs' counsel merely included such in formation in the plaintiffs' response to the defendant's opposition.[2] Several factors, however, persuade me not to exclude what would amount to nearly all of the plaintiffs' evidence based on their counsel's failure to reproduce the relevant authenticating statements in affidavit form. First, I note that an attorney who signs a motion acts not only as the client's representative, but also as an officer of the court. Furthermore, by signing a motion an attorney certifies that the facts contained in the motion are true. *See* Fed. R. Civ. P. 11(b)(4). The facts at issue are within the attorney's personal knowledge, namely, that the defendant produced the documents in discovery during this case and prior cases in which the plaintiffs' counsel also participated. The defendant has not suggested that the statements by the plaintiffs' counsel are false. Accordingly, for purposes of the summary judgment motions I will consider the information regarding document production as if contained in an affidavit.

[2] Rule 56(c) requires summary judgment motions to be based on the "pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits."

1. Admissible Evidence

Under Fed. R. Evid. 901(b)(4) documents may be authenticated based on their content and the circumstances in which they are discovered. *See United States v. Paulino*, 13 F.3d 20, 23-24 (1st Cir. 1994) (document authenticated where it bore defendant's name and apartment number, was found in apartment to which only defendant had key, and was type of document likely to be kept by apartment tenant); *Burgess v. Premier Corp.*, 727 F.2d 826, 835 (9th Cir. 1984) (exhibits authenticated by fact of being found in defendant's warehouse); *United States v. Brown*, 688 F.2d 1112, 1115-16 (7th Cir. 1982) (corporate documents authenticated because produced by defendant who, as officer of corporation, was in position to vouch for their authenticity); *Barry Wright Corp. v. ITT Grinnell Corp.*, 1981 WL 2032, at *2 (Civ. No. 78-485-S) (D. Mass. Feb. 26, 1981) (exhibits authenticated because they were produced from defendant's files and contained information which firm would likely record in ordinary course of business).

Exhibit B[3] is a 1962 memorandum discussing new keyboard designs to be used by IBM. It refers to "Industrial Design development work" in the "German laboratory and the Nordic laboratory," as well as ongoing work in the German laboratory to develop a new keyboard configuration. Exhibit C is a report titled "Report 1962 -- Industrial Design Studies -- Keyboard Project 840400" bearing the logo "IBM Industrial Design Laboratories Germany." The report discusses the relationship between keyboards and manipulation of the arms and hands, as well as new keyboard designs. *Id.* at 2-3, 5-7. Exhibit E is a telex marked "IBM Confidential" concerning "VDT Issue in Japan." The telex discusses the efforts of Japanese employers to prevent discomfort

[3] All references herein to letter exhibits are to exhibits attached to the Maimon Affidavit.

associated with Visual Display Terminal ("VDT") use, and refers to employers learning to control keypunch-related "repetitive strain injuries" in the 1960s. Exhibit F is a 1985 memorandum on IBM letterhead discussing the six-hour per day limit on keypunch operation as a method used to control tenosynovitis. Exhibit G is a March 1984 report entitled "Report from VDU Task Force" and marked "IBM Confidential." The report discusses the increase of tenosynovitis and its relation to activities like keyboarding, and recommends measures to decrease the risk of the disease. *Id.* at 1, 3-4. Exhibit I is entitled "Health and Safety Questions of Video Displays (VDT's) and Their Use -- Testimony at State Hearings -- IBM Corporation -- Spring 1983." Its contents are consistent with its title. Exhibit U is a 1983 memorandum marked "IBM Confidential," referencing reports on tests conducted by Dr. E. Grandjean at the Federal Institute of Technology in Zurich. The author states that he "had the opportunity to review these activities during a recent visit." *Id.* at 1. Attached is a report by Dr. Grandjean and others titled "Studies on ergonomically designed alphanumeric keyboards." The report describes the advantages of a split keyboard over conventional keyboards. *Id.* at 19. Exhibit X is a January 1990 brochure bearing IBM's logo, entitled "Health and Safety Aspects of Visual Displays."[4] Its contents are consistent with its title. Exhibit Y is an "IBM Administrative Bulletin" regarding "Visual Display Terminals and Health Effects," dated June 18, 1990. The bulletin discusses avoiding ergonomic injuries associated with terminal use.[5]

The contents of the foregoing documents are such that the defendant is in a position to vouch

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[4] The defendant sent this brochure to Sandra Gammon at her request when she was teaching a course at the University of Southern Maine on the health and safety of using keyboards and visual display terminals. Affidavit of Sandra Gammon (*Smith* Docket No. 47; *Grady* Docket No. 39) ¶ 3.

[5] Exhibits X and Y are admissible only in the *Grady* case because Smith's and Lane's injuries predate Exhibits X and Y.

for their authenticity.[6] The defendant produced the documents either in these cases, or in the pending case of *Schneck v. IBM*, Civ. No. 92-4370 (D.N.J.). Plaintiffs' SMF Response at 3-5, 7. I find the documents to be authenticated.[7]

I note that the defendant does not challenge the authenticity of exhibits L, N, O, P and Q.[8] In its opposition the defendant argues, "[a]s a threshold matter," that the affidavit submitted by Attorney Maimon was does not establish any evidentiary basis for admitting the documents. Defendant's SMF Opposition at 1. Thereafter, the defendant specified its objections to each numbered paragraph in the plaintiffs' SMF. Regarding many of the paragraphs, the defendant notes that there is "no evidentiary basis" for admitting the documents cited. Yet, in its objections to statements of fact based on exhibits L, N, O, P and Q, the defendant did not raise the "evidentiary basis" issue. *Id.* at 2-3.[9]

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[6] Significantly, IBM has not suggested that these documents are not what they purport to be.

[7] Exhibit T, an article by Zipp *et al.* titled *Keyboard design through physiological strain measurements*, published in the June 1983 issue of *Applied Ergonomics*, is self-authenticating as a periodical under Fed. R. Evid. 902(6). *See In re First Hartford Corp. v. E.Y. Neill & Co.*, 63 B.R. 479, 483 n.2 (Bankr. S.D.N.Y. 1986) (photocopies and Lexis printouts of articles admitted as self-authenticating under rule 902(6) and duplicates under rule 1003).

[8] Those exhibits are: Exhibit L, "State-of-the-Art Report on Cumulative Trauma Disorders," by the plaintiffs' expert Karl H. E. Kroemer, Ph.D.; Exhibit N, Deposition Transcript of Carla Springer, Ph.D., in *Schneck v. IBM*; Exhibit O, trial testimony of Dr. Kroemer in *Lewis v. IBM*, No. 94-3058 (E.D. Pa. Apr. 17, 1995); Exhibit P, trial testimony of the plaintiff's expert Laura Stewart Welch, M.D., in *Lewis v. IBM*; and Exhibit Q, "Evidence for Work-Relatedness of Musculoskeletal Disorders in Keyboard Operation and Data Entry Tasks," by the plaintiffs' expert Laura Punnett, Sc.D.

[9] A possible objection to the transcripts of trial and deposition testimony (exhibits N, O and P) is that they were not certified copies as required by rule 56(e). This objection is sufficiently different in nature from the threshold "evidentiary basis" objection that I do not consider it raised. *See* Fed. R. Evid. 103(a)(1) (requiring statement of specific ground for objection if not apparent from (continued...)

2. Inadmissible Evidence

The following exhibits are inadmissible on the summary judgment motions because they are not authenticated. Exhibit A is entitled "The Bio-Technology of Card Punching," by Adolf Yllo, Health Dept. AB Volvo, Sweden. Although IBM produced the document, nothing about its content suggests that IBM can vouch for its authenticity. Exhibit D appears to be a memorandum concerning a telex that discusses employers who dealt with repetitive stress injuries in the 1960s. It bears no characteristics identifying it as the defendant's document. Exhibit H is a letter, apparently prepared by the defendant's attorney, discussing repetitive strain injuries under Australian law. The plaintiffs have supplied proof that this document was produced by the Center for Office Technology, but have not proven their allegation that the center was a "repository" for IBM documents. There is no suggestion that the center can vouch for the authenticity of the document. Exhibit R is a chapter (in an unidentified book) entitled "Practical Ergonomics" by O. Bruce Dickerson, M.D., "the former Director of Corporate Health" for the defendant. Plaintiffs' SMF ¶ 17. The plaintiffs have not shown that Dr. Dickerson wrote the document while he was the defendant's employee. Thus, there is no evidence that the defendant can vouch for the document's authenticity. Exhibit S is a report entitled "Guidelines for the Ergonomic Design of Keyboards," by Prof. W. Rohmert. The plaintiffs claim that Prof. Rohmert "had consulted with IBM on keyboard design issues." Plaintiffs' SMF ¶ 18. Again, that does not enable the defendant to vouch for its authenticity. Exhibit W purports to be a copy of the New Zealand Department of Labour's 1986 Code of Practice for Visual Display

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[9] (...continued)
context). Furthermore, Exhibits L and Q are part of the plaintiffs' designation of experts, and are properly considered on these motions. Plaintiffs' Designation of Experts Vols. II-A, III-B.

Units. IBM's mere possession of this copy does not authenticate it, as IBM cannot vouch for the authenticity of its contents.

Additionally, the plaintiffs cite Exhibit V, two ITT brochures concerning a split keyboard that ITT manufactured, to support their statement that the split keyboard was marketed "shortly" after the defendant received a report from Dr. Grandjean. Plaintiffs' SMF ¶ 20. The brochures, however, are undated, and thus are inadmissible to show when ITT marketed the split keyboard. Exhibit Z, a memorandum concerning ergonomics and cumulative trauma disorders, is dated October 21, 1991. Because the plaintiffs were injured before the date of Exhibit Z, that exhibit is inadmissible.[10]

IV. Material Facts

Viewed in the light most favorable to the plaintiffs, the summary judgment record reveals the following material facts: Plaintiff Margaret Smith was employed full time at the law firm of Bernstein, Shur, Sawyer & Nelson as a legal secretary from on or about 1982 until on or about June 1988. *Smith* Amended Complaint (*Smith* Docket No. 25) ¶ 4; Defendant's Statement of Material Facts ("*Smith* Defendant's SMF") (*Smith* Docket No. 37) ¶ 2. She used in the course of that employment, from on or about 1982 until on or about August 1986, an IBM "Displaywriter" keyboard. *Smith* Amended Complaint ¶ 5; *Smith* Defendant's SMF ¶ 3. She also used, from on or about August 1986 until on or about June 1988, an IBM "Model M" keyboard. *Smith* Amended Complaint ¶ 5; *Smith* Defendant's SMF ¶ 4. Smith states that she suffered pain in her right and left hands, wrists, arms and shoulders beginning in August 1989. Deposition of Robert B. Waterhouse,

[10] As noted earlier, Exhibits X and Y are also inadmissible in the *Smith* case for the same reason.

M.D. ("Waterhouse Dep.") at Dep. Exh.10-C, p.1.

Plaintiff Ann Lane was employed at Bernstein, Shur, Sawyer and Nelson as a legal secretary from on or about 1984 until on or about March 1990. *Smith* Amended Complaint ¶ 9; *Smith* Defendant's SMF ¶ 8. She used in the course of that employment, from August 1986 until on or about March 1990, an IBM "Model M" keyboard. *Smith* Amended Complaint ¶ 10; *Smith* Defendant's SMF ¶ 9. Lane states that she suffered from "tenosynovitis/CTS [carpal tunnel syndrome]" as far back as the summer of 1987. Deposition of John A. Attwood, M.D., at Dep. Exh. 3, p.1.

Plaintiff Kathryn Grady worked full time at Blue Cross/Blue Shield from on or about 1973 until on or about May 1, 1991. *Grady* Amended Complaint (*Grady* Docket No. 18) ¶ 4; Defendant's Statement of Material Facts ("*Grady* Defendant's SMF") (*Grady* Docket No. 29) ¶ 2. From and after 1988, she used IBM Model M keyboards that were in all respects identical to an IBM keyboard manufactured on July 23, 1986. *Grady* Amended Complaint ¶ 5; *Grady* Defendant's SMF ¶¶ 3-4. Grady suffers from upper extremity injuries that were first diagnosed on October 17, 1990. Waterhouse Dep. at Dep. Exh. 11-A.

In 1962 the defendant's German laboratory considered a keyboard configuration that would "take[] into account the shape and path of typist's [sic] hands." Exh. B at 1-2. A 1962 IBM report illustrated a "30 Degree Keyboard," a keyboard angled to permit typing without turning the hand and wrist relative to the forearm. Exh. C at Fig. 8.

A March 1984 IBM "Report from VDU Task Force" stated: "Tenosynovitis is a real and crippling disease whose incidence is increasing within IBM and elsewhere and is associated with sustained, high-speed, repetitive actions such as keyboarding." Exh. G at 1. The report made, *inter*

alia, the following recommendations for IBM locations involving a high level of keyboard activity:

> Word processing output per person should be controlled so as not to exceed 1000 lines (approx 40 pages) per day. . . . Input activity should be broken at least hourly for ten minutes to pursue duties other than keyboarding. . . . Regular sessions should be held with the workers to reinforce their awareness of safety precautions and standards. They should be encouraged to report any fatigue pains to their manager.

Id. at 3. Finally, the report recommended that general workstation management should include "[t]raining and education of all managers in ergonomic requirements and safety procedures." *Id.* at 4.

In January 1985 an IBM confidential telex noted, in reference to VDTs, that Japanese employers were "taking cautious steps to prevent discomfort, partly learning from precedence of key punch operation issues of the 1960's, when they learned how to control repetitive strain injuries." Exh. E. In May 1985 R.W. Ireton, manager of Safety & Industrial Hygiene for the defendant, wrote that "the primary control for keypunch operators was to recognize tenosynovitis as a national disease and limit the keypunch operators to six hours each day. I am not so certain that we want to encourage this as 'solution' for any VDT issues." Exh. F.

In a January 1990 brochure titled "Health and Safety Aspects of Visual Displays," IBM's VDT Ergonomics Project Office printed the following:

> Q Can a person get Carpal Tunnel Syndrome from intense keyboard use?
>
> A Yes, it is one of several ailments that is possible if all the conditions are present, e.g., repetitive motion, continuous impact and improper hand positioning. CTS can be prevented with proper workstation design and body positioning.

Exh. X at 13. A June 1990 "IBM Administrative Bulletin" concerning "Visual Display Terminals and Health Effects" noted the rising number and severity of ergonomic injuries. Exh. Y. The bulletin observed that such injuries usually "develop over time from repetitive movements such as

intensive keyboard work and improper posture while working on a computer terminal." *Id.*[11]

Dr. Welch has testified that "[t]he sustained posture of ulna[r] deviation or wrist extension or flexion" attendant to keyboard use causes carpal tunnel syndrome by increasing pressure in the carpal tunnel. Exh. P at 204. According to Dr. Punnett, if keyboards had been designed to reduce stresses such as "non-neutral wrist postural angles or key activation force," there "probably would have been fewer musculoskeletal disorders among" keyboard operators in the studies she reviewed. Exh. Q at 25-26. Sometime between 1983 and 1987, Dr. Springer had reached the opinion that one could contribute causally to or exacerbate some soft tissue disorders in the wrist by having poor posture while using a VDT. Exh. N at 78, 96, 98. By 1987 she had also reached the opinion that most VDT users were unaware of the optimal postures for most parts of their bodies during VDT use. *Id.* at 99-100.

According to Dr. Kroemer, "[B]y the end of the 1970s, the medical basis for causation as well as treatment of CTDs [cumulative trauma disorders] were, obviously, common knowledge in the medical profession. . . . Thus the relation between CTD and design and use of keyboards as input devices was well established." Exh. L at 35. Dr. Punnett testified that, based on the scientific evidence available as of December 31, 1986, manufacturers should have been providing warnings to keyboard users. Deposition of Laura Punnett, Sc.D. ("Punnett Dep.") at 108.

An article titled *Keyboard design through physiological strain measurements*, published in the June 1983 issue of *Applied Ergonomics*, stated:

> The physiologically tolerable range of positions for the joints of the upper extremities have been investigated for typing tasks by recording the myoelectric activities of the

[11] As noted above, Exhibits X and Y are treated as part of the summary judgment record only in the *Grady* case.

> involved muscles. For long-term typing tasks a split keyboard is recommended allocating a key field to each hand. The fields should be rotated against each other in the horizontal plane and inclined laterally.

Exh. T at 1.

V. Design Defect Claims

The defendant argues that it is entitled to summary judgment on the plaintiffs' negligence- and strict liability-based design-defect claims because the plaintiffs have not proven a feasible alternative design.

> In actions based upon defects in design, negligence and strict liability theories overlap in that under both theories the plaintiff must prove that the product was defectively designed thereby exposing the user to an unreasonable risk of harm. Such proof will involve an examination of the utility of [the product's] design, the risk of the design and the feasibility of safer alternatives.

Stanley v. Schiavi Mobile Homes, Inc., 462 A.2d 1144, 1148 (Me. 1983) (citations omitted).

The defendant cites *Porter v. Pfizer Hosp. Prods. Group, Inc.*, 783 F. Supp. 1466, 1475 (D. Me. 1992), for the proposition that the plaintiffs must "establish that there were safer, feasible alternatives available at the time the IBM products were distributed." Defendant's Memorandum in Support of Motion for Summary Judgment and Motion in Limine ("Defendant's Memorandum") (*Smith* Docket No. 36; *Grady* Docket No. 28) at 6. Yet, the *Porter* court stated that the plaintiff could not prevail on a design defect theory because he "presented no evidence that the utility of the design was outweighed by the risks . . . ." *Id.* at 1474. The court did not mention failure to prove a feasible alternative design.

Assuming, *arguendo*, that the plaintiffs must prove a feasible alternative design to avert summary judgment, they have satisfied their burden. They have produced evidence of the risks

attending conventional keyboard use, as well as a 1983 article advocating a split keyboard for long-term typing tasks. A rational fact finder could decide that the risks of the IBM keyboard outweighed its utility, and that it was feasible to design a split keyboard as early as 1983.

VI. Duty-to-Warn Claims

The plaintiffs also assert duty-to-warn claims under theories of negligence and strict-liability. The defendant argues that any such duty terminates at the time of sale,[12] while the plaintiffs ask the court specifically to recognize a post-sale duty to warn. The Law Court has not yet recognized such a duty, either in negligence or strict liability.

Maine imposes strict products liability only on "[o]ne who sells any goods or products in a defective condition." 14 M.R.S.A. § 221. Because the statute premises liability on the condition of the product *as sold*, post-sale knowledge is irrelevant, and there can be no post-sale duty to warn under section 221. Dicta in the Law Court's decisions support this interpretation.[13]

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[12] The defendant also argues that "[n]one of Plaintiffs' experts can present scientific evidence that any 'warnings' as to known thresholds existed in either 1982 or by the summer of 1986 relating to repetitive force." *Smith* Defendant's Memorandum at 15-16; *Grady* Defendant's Memorandum at 15. Yet, the record reveals an adequate "known threshold" that existed before 1986. The defendant's own 1984 "Report From VDU Task Force" observed: "At 1200 lines (or approx 48 pages) per day of data input, we appear to be approaching the limit of an operators [sic] capacity with today's VDU equipment. . . . Operators are commencing to sustain repetitive injuries at this level of achievement." Exh. G at 2. This statement provides a sufficient threshold about which keyboard users might have been warned.

[13] *See Pottle v. Up-Right, Inc.*, 628 A.2d 672, 674-75 (Me. 1993) ("Strict products liability attaches to a manufacturer when by a defect in design or manufacture, or by the failure to provide adequate warnings about its hazards, a product is sold in a condition unreasonably dangerous to the user."); *Lorfano v. Dura Stone Steps, Inc.*, 569 A.2d 195, 197 (Me. 1990) ("We have construed [section 221] as requiring that '[a] manufacturer has a responsibility to inform users and consumers of dangers about which he either knows or should know at the time the product is sold.'") (quoting (continued...)

However, I find no indication, even in dicta, whether Maine favors or disfavors a negligence-based post-sale duty to warn. "Where unsettled questions of law are involved, we can assume that [Maine]'s highest court would adopt the view which, consistent with its precedent, seems best supported by the force of logic and the better-reasoned authorities." *Ryan v. Royal Ins. Co. of Am.*, 916 F.2d 731, 739 (1st Cir. 1990). As the District of Rhode Island recently recognized in *Piester v. IBM Corp.*, No. 93-0470-P, slip op. at 10 (D.R.I. Sept. 15, 1995), the majority position favors a post-sale duty to warn.[14]

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[13] (...continued)
Bernier v. Raymark Indus., Inc., 516 a.2d 534, 540 (Me. 1986)).

[14] Based on cases cited in *Piester*, slip op. at 7-10 nn.2, 4, I find that courts have adopted a post-sale duty to warn applicable in eighteen states: *Gracyalny v. Westinghouse Elec. Corp.*, 723 F.2d 1311, 1318 (7th Cir. 1983) (Wis. law) (manufacturer's duty to warn extends to dangers that arise after marketing); *LaBelle*, 649 F.2d at 49 (Mass. law) (manufacturer's duty to warn extends to purchaser even if defects are discovered after initial sale); *Braniff Airways, Inc. v. Curtiss-Wright Corp.*, 411 F.2d 451, 453 (2d Cir. 1969) (Fla. law) (where defects are discovered after sale, manufacturer has duty to remedy, or if remedy not feasible, to give users warnings and instructions to minimize danger); *Piester*, No. 93-0470-P, slip op. at 10 (R.I. law) (on continuing duty-to-warn claim, plaintiffs may introduce evidence relating to what defendant knew or should have known prior to alleged injury); *Rodriguez v. Besser Co.*, 565 P.2d 1315, 1320 (Ariz. Ct. App. 1977) (dicta) (duty to warn "may be a continuing one applying to dangers the manufacturer discovers after sale"); *Downing v. Overhead Door Corp.*, 707 P.2d 1027, 1033 (Colo. Ct. App. 1985) (duty to warn of danger discovered after sale); *Chrysler Corp. v. Batten*, 450 S.E.2d 208, 211-13 (Ga. 1994) (duty to warn arises whenever manufacturer knows or reasonably should know of danger arising from product use); *Fell v. Kewanee Farm Equip. Co.*, 457 N.W.2d 911, 920-21 (Iowa 1990) (trial judge erred by failing to instruct on post-sale duty to warn); *Patton v. Hutchinson Wil-Rich Mfg. Co.*, 861 P.2d 1299, 1313-14 (Kan. 1993) (duty to warn readily identifiable consumers of life-threatening danger discovered after sale); *Owens-Illinois, Inc. v. Zenobia*, 601 A.2d 633, 646 (Md. 1992) (manufacturer must make reasonable efforts to warn of defect discovered after sale); *Comstock v. General Motors Corp.*, 99 N.W.2d 627, 634 (Mich. 1959) (duty to warn of defect that makes product hazardous to life if discovered shortly after sale); *Hodder v. Goodyear Tire & Rubber Co.*, 426 N.W.2d 826, 833 (Minn. 1988) (continuing duty to warn applies in "special cases"); *Feldman v. Lederle Labs.*, 479 A.2d 374, 389 (N.J. 1984) (manufacturer has duty to warn physicians of side effects discovered after sale of drug); *Cover v. Cohen*, 461 N.E.2d 864, 871 (N.Y. 1984) (extent of post-sale duty to warn is function of degree of danger and number of instances reported); *Smith v. Selco Prods., Inc.*, 385 S.E.2d 173, 176-77 (N.C. Ct. App. 1989) (duty to warn of dangers that

Several cases adopting the majority rule justify their holding on the principle that manufacturers should be held to the knowledge and skill of experts and must keep informed about the state-of-the-art as it relates to their products. *See Feldman*, 479 A.2d at 386-87; *Cover*, 461 N.E.2d at 871; *Koker*, 804 P.2d at 666-67. The Law Court recognized this principle in *Bernier*, 516 A.2d at 538, albeit in the context of a time-of-sale warning.[15] Additionally, one majority-rule court reasoned that allowing manufacturers to ignore post-sale knowledge of dangers associated with their products is contrary to prevailing principles of negligence law. *Crowston*, 521 N.W.2d at 407.

The reasoning of courts adopting the minority position is unpersuasive. In *Estate of Kimmel*, 773 F. Supp. at 830-31, the court predicted that Virginia would not adopt a post-sale duty to warn because it had adopted section 388 of the *Restatement (Second) of Torts*. Section 388 imposes on suppliers a duty to exercise reasonable care to warn foreseeable users of reasonably knowable dangers. Yet, neither the text nor the comments to section 388 address the situation where a manufacturer learns of a danger after it sells the product. In *Carrizales*, 589 N.E.2d at 579, the

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manufacturer learns of after sale); *Crowston v. Goodyear Tire & Rubber Co.*, 521 N.W.2d 401, 404 (N.D. 1994) (duty to take reasonable steps to warn foreseeable users of dangers discovered after sale); *Walton v. Avco Corp.*, 557 A.2d 372, 379 (Pa. Super. Ct. 1989) (helicopter manufacturer had duty to warn of defects in engine discovered after sale because unique nature of product and market facilitated communication of warning); *Koker v. Armstrong Cork, Inc.*, 804 P.2d 659, 666-67 (Wash. Ct. App. 1991) (upholding jury instruction that manufacturer had duty to warn of danger reasonably discoverable after sale).

I find only three jurisdictions rejecting a post-sale duty to warn: *Estate of Kimmel v. Clark Equip. Co.*, 773 F. Supp. 828, 831 (W.D. Va. 1991) (Va. law); *Carrizales v. Rheem Mfg. Co.*, 589 N.E.2d 569, 579 (Ill. App. Ct. 1991); *Dion v. Ford Motor Co.*, 804 S.W.2d 302, 310 (Tex. Ct. App. 1991) (no post-sale duty to warn unless manufacturer undertakes duty itself).

[15] "A manufacturer is held to the knowledge and skill of an expert, and is required to test his products and keep abreast of scientific discoveries related to his products, but he has a duty to warn only of dangers that the employment of the reasonable foresight of an expert could reveal." *Bernier*, 516 A.2d at 538.

court reasoned that "[o]ur courts do not contemplate placing a duty on manufacturers to subsequently warn all foreseeable users of products by reason of a better design or construction not available at the time the product entered the stream of commerce." This exaggerates the extent of a negligence-based post-sale duty to warn. The duty would not apply in all cases and to all users, but only to the extent that a reasonably prudent manufacturer would have provided a warning under the circumstances.

I find the majority position to be the better-reasoned view. As a matter of policy, a negligence-based post-sale duty to warn "accommodates society's competing desires to provide product users with complete product information and yet to avoid placing unfair or unjustifiable burdens on manufacturers." Victor E. Schwartz, *The Post-Sale Duty to Warn: Two Unfortunate Forks in the Road to a Reasonable Doctrine*, 58 N.Y.U. L. Rev. 892, 896 (1983). Moreover, such a duty encourages manufacturers to "keep abreast of scientific discoveries related to [their] products." *Bernier*, 516 A.2d at 538.

I predict that the Law Court would adopt a negligence-based post-sale duty to warn in product liability cases. Accordingly, I conclude, consistent with my ruling today in a companion case pending in this court in which I am acting by consent pursuant to 28 U.S.C. § 636(c)(1), *Davies v. Datapoint Corp.*, No. 94-56-P-DMC, that under Maine negligence law when a manufacturer learns, or in the exercise of reasonable care should learn, of dangers associated with the foreseeable use of its products after they are manufactured and sold, it must take reasonable steps to warn foreseeable users about those dangers.

> Given the practical problems associated with post-sale warnings, what is reasonable in the point-of-sale context need not be reasonable in the post-sale context. . . . [T]he facts of a particular case, such as the gravity and likelihood of harm, the number of

> persons affected, and the economic cost and practical problems associated with identifying and contacting current product users, should all be relevant in determining whether a manufacturer has satisfactorily discharged a post-sale duty to warn. Depending on the facts, something less than actual notice to every current product user may be reasonable, and therefore sufficient, in the post-sale context.

Schwartz, *supra*, at 896 (footnote omitted); *see* John W. Wade, *On the Effect in Product Liability of Knowledge Unavailable Prior to Marketing*, 58 N.Y.U. L. Rev. 734, 761 (1983) (manufacturer should have duty to use reasonable care to inform owners and users of dangers discovered post-sale, taking into consideration extent of danger involved and availability of means to identify and contact those who have possession of product).

Smith started using an IBM "Displaywriter" keyboard in 1982, and an IBM "Model M" keyboard in August 1986. Lane started using an IBM "Model M" keyboard in August 1986. Beginning in 1988, Grady used IBM "Model M" keyboards that were in all respects identical to IBM keyboards manufactured on July 23, 1986. These dates determine what evidence is relevant to the time-of-sale and post-sale duties.

A. Time-of-Sale Duty to Warn

In 1984 IBM's VDU Task Force recommended that IBM locations with a high level of keyboard activity limit keyboard output, provide hourly breaks and reinforce workers' awareness of safety precautions and standards. Furthermore, Dr. Kroemer's report indicates that the relationship between keyboard use and cumulative trauma disorders was established as far back as the late 1970s. A rational fact finder could conclude that IBM "knew or should have known of a danger sufficiently serious to require a warning" in 1984, and even in the late 1970s. *Pottle*, 628 A.2d at 675.

B. Negligence-Based Post-Sale Duty to Warn

The defendant raises several objections to Dr. Punnett's testimony, which is relevant on the post-sale duty-to-warn issue. First, the defendant argues that Dr. Punnett is not qualified to prove that a failure to warn proximately caused the plaintiffs' injuries.[16] Dr. Punnett is an occupational epidemiologist and ergonomist, not a medical doctor. "Specific causation," the defendant argues, "is 'beyond the domain of the science of epidemiology'." Defendant's Memorandum at 16 (quoting Federal Judicial Center, *Reference Manual on Scientific Evidence* 167 (1994) ("*Reference Manual*")). The defendant misinterprets the Federal Judicial Center's discussion of epidemiology.[17] Epidemiological studies can demonstrate that "an individual plaintiff's disease was more likely than

[16] In its motions for summary judgment, the defendant does not argue that the plaintiffs have produced no evidence of proximate causation. Defendant's Memorandum at 2 n.1 ("The issue of the causal connection between use of IBM products and Plaintiffs' symptoms or injuries . . . is not the subject of this Motion. That causation is addressed herein only to the limited extent that we discuss Plaintiffs' obligation to prove the causal connection between IBM's failure to warn and Plaintiffs' injuries. See section C,3, below."). Section C,3 argues only that the plaintiffs' experts are not *qualified* to prove any causal relationship between the lack of warnings and the plaintiff's injuries. *Id*. at 15-17. Accordingly, I disregard the defendant's argument in its reply memorandum that the plaintiffs "have not met their burden of coming forward with evidence of a causal link between their injuries and any action or inaction of IBM." Defendant's Reply Memorandum to Plaintiffs' Opposition to Defendant's Motion in Limine and Motion for Summary Judgment (*Smith* Docket No. 43; *Grady* Docket No. 35) at 5. A reply memorandum "shall be strictly confined to replying to new matter raised in the . . . opposing memorandum." Local R. 19(d).

[17] The source of the defendant's misinterpretation may lie in the Federal Judicial Center's discussion of the "frequentist school of statistics." *Reference Manual* at 168 n.127. In the context of this case, a frequentist might agree with an epidemiological study demonstrating that 75% of keyboard users develop the plaintiff's injuries. *Id.* Yet a frequentist would not conclude that there is a 75% probability that keyboard use caused the plaintiff's injuries because "[t]here is no logically rigorous definition of what a statement of probability means with reference to an individual instance." *Id.* (quoting Lee Loevinger, *On Logic and Sociology*, 32 Jurimetrics J. 527, 530 (1992)). In essence, the defendant's argument is that probability evidence, by its very definition, cannot prove with absolute certainty what happened in this case. Nevertheless, burdens of proof are necessarily framed in terms of probability rather than absolute certainty.

not caused by the implicated agent." *Reference Manual* at 168-69. Thus, Dr. Punnett is qualified to testify that the plaintiffs' injuries were more likely than not caused by their keyboard use.

Next, the defendant argues that Dr. Punnett employed an inappropriate standard to determine IBM's duty to warn as of 1986. "[A] duty to warn arises when the manufacturer knew or should have known of a danger sufficiently serious to require a warning." *Pottle*, 628 A.2d at 675. Dr. Punnett testified that "as of the end of 1986, there was sufficient scientific evidence to be concerned about the possibility of health risks and to justify warnings being provided to users of keyboards." Punnett Dep. at 103. The defendant argues that mere speculation that a product might be dangerous cannot support Dr. Punnett's duty-to-warn opinion. *See Cheshire Medical Ctr. v. W.R. Grace & Co.*, 49 F.3d 26, 30 (1st Cir. 1995) (under N.H. law, no duty to warn on basis of speculation that product might be dangerous). Yet, a rational fact finder could conclude from her testimony that keyboard use presented a danger "sufficiently serious to require a warning." *Pottle*, 628 A.2d at 675.

The defendant also argues that Dr. Punnett's opinion is not supported by the articles upon which she relied because (1) the pre-1987 reports she cites do not prove a specific link between keyboard use and the plaintiffs' injuries, (2) she admitted that her expert report was biased toward papers published after 1986, and (3) she was aware of no peer-reviewed articles as of December 31, 1986 concluding that manufacturers should place warnings on their keyboards. *Smith* Defendant's Memorandum at 13-14; *Grady* Defendant's Memorandum at 13. First, the reports need not prove a specific link between keyboard use and the plaintiffs' injuries. Dr. Punnett may draw her own conclusions from the data set forth in the reports. Second, despite admitting a *possible* bias in her report toward post-1986 papers, Punnett Dep. at 106, Dr. Punnett testified that there was "sufficient scientific evidence as of December 31st, 1986, that manufacturers of keyboards should have been

providing warnings to users of keyboards," *id.* at 108. Finally, the absence of peer-reviewed articles advocating keyboard warnings does not mean that data supporting such a conclusion were unavailable. A manufacturer "held to the knowledge and skill of an expert," *Bernier v. Raymark Indus., Inc.*, 516 A.2d 534, 538 (Me. 1986), need not be spoon-fed the conclusion to which available data point. A rational jury could conclude from Dr. Punnett's testimony[18] that the defendant knew or should have known of dangers associated with use of its keyboards, and that it had a post-sale duty to take reasonable steps to warn the plaintiffs, as foreseeable users, of those dangers.

VII. Punitive Damages

Finally, the defendant argues that the plaintiffs have not produced evidence to support their punitive damages claim. Maine law permits punitive damages only if the plaintiff establishes that the defendant's tortious conduct was motivated by malice. *Tuttle v. Raymond*, 494 A.2d 1353, 1361 (Me. 1985). There is no evidence here to suggest actual malice, *i.e.*, that the defendant's conduct was motivated by ill will toward the plaintiffs. *Id.* at 1361. Implied malice exists when the defendant's conduct is so outrageous that malice toward the plaintiff can be inferred. *Id.* Mere recklessness will not support a finding of implied malice. *Id.*

A rational fact finder could find implied malice based on this record. In 1984 an internal IBM task force recognized that, at input levels of 1200 lines per day, keyboard operators began to

[18] Grady may rely on additional evidence. The defendant's January 1990 brochure noted that intense keyboard use, under certain circumstances, may cause carpal tunnel syndrome, and that CTS may be prevented with proper workstation design and body positioning. And the defendant's June 1990 administrative bulletin noted that ergonomic injuries usually develop over time from repetitive movements such as intensive keyboard work and improper posture while working at a computer terminal.

sustain repetitive injuries. The task force recommended that locations with high levels of keyboard activity limit daily output to forty-eight pages, implement hourly breaks from keyboarding, and reinforce workers' awareness of safety precautions and standards. As of 1986, however, the defendant had not changed its keyboard design to alleviate the stresses leading to repetitive stress injuries, nor had it warned keyboard users to limit their output, take hourly breaks and be aware of safety precautions and standards. A rational fact finder could find the defendant's inaction in the face of known dangers to be so outrageous that malice toward keyboard users such as the plaintiffs can be inferred.

VIII. Motion *in Limine*

In each case, the defendant has moved *in limine* "that Plaintiff[s'] proof be limited in accord with Maine law that a manufacturer's duties regarding designs and warnings must be based upon scientific information available at the time the product was sold or distributed." Defendant's Motion for Summary Judgment and Motion in Limine (*Smith* Docket No. 35; *Grady* Docket No. 27) at 1. Because I recommend above that the court adopt a negligence-based post-sale duty to warn, I deny the motions as they pertain to the plaintiffs' negligence-based post-sale duty-to-warn claims.

The plaintiffs have stated no reason why the defendant's *in limine* motions, as they pertain to the design defect claims, should be denied. The defendant's motions are granted as follows: no evidence is admissible at trial to prove the defendant's duty to design a safe keyboard unless such evidence was reasonably available to the defendant at or before the time it distributed the keyboards at issue. This ruling, of course, does not preclude the admissibility of such evidence for other permissible purposes, nor does it preclude expert testimony based on information available at or

before the time of distribution.

IX. Conclusion

For the foregoing reasons, I recommend that the defendant's motions for summary judgment be ***GRANTED*** insofar as they pertain to the plaintiffs' strict liability-based post-sale duty-to-warn claims, and that the motions otherwise be ***DENIED***. The defendant's motions *in limine* are ***DENIED*** as they pertain to the plaintiffs' negligence-based post-sale duty-to-warn claims, and otherwise ***GRANTED***.

NOTICE

A party may file objections to those specified portions of a magistrate judge's report or proposed findings or recommended decisions entered pursuant to 28 U.S.C. § 636(b)(1)(B) for which de novo review by the district court is sought, together with a supporting memorandum, within ten (10) days after being served with a copy thereof. A responsive memorandum shall be filed within ten (10) days after the filing of the objection.

Failure to file a timely objection shall constitute a waiver of the right to de novo review by the district court and to appeal the district court's order.

Dated at Portland, Maine this 19th day of January, 1996.

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David M. Cohen
United States Magistrate Judge